

WHAT IS CLAIMED IS:

1 ~~AI > 1. A method of securing a polymeric member to a metallic member in~~  
2 a high strength fluid tight relationship comprising:

- 3 a) mounting the polymeric member against the metallic  
4 member; and  
5 b) hot pressing the polymeric member against the metallic  
6 member at a temperature above the glass transition temperature and  
7 below the melting point of the polymeric material of the polymeric member  
8 while subjecting the polymeric material to plastic deformation.

1 *Sub B2*  
2 2. The method of claim 1 wherein the polymeric member is a tubular  
3 element with an inner lumen extending therethrough and at least part of the  
4 metallic member is disposed within the inner lumen of the polymeric member and  
5 the polymeric material surrounding the metallic member is hot pressed against  
6 the portion of the metallic member within the inner lumen.

1 *AI >* ~~3. The method of claim 1 wherein the polymeric material from which~~  
2 the polymeric member is formed is a thermoplastic polymer selected from the  
3 group consisting of polyetheretherketone, polyetheramide, polyphenylene  
4 sulfide and polysulfone.

1 4. The method of claim 1 wherein the hot pressing of the polymeric  
2 member against the metallic member includes placing a heat shrinkable member  
3 about the polymeric member and the metallic member, heating the heat

4 ~~shrinkable member to shrink said member against the polymeric and metallic~~  
5 ~~members, causing the temperatures of both the polymeric and metallic members~~  
6 ~~to increase to a temperature above the glass transition temperature of the~~  
7 ~~polymeric material and apply adequate pressure to cause the polymeric member~~  
8 ~~to be plastically deform and bond to the metallic member.~~

1 *Sub B4* 5. The method of claim 4 wherein the heat shrinkable member is  
2 removed from the <sup>junction</sup> ~~junction~~ between the polymeric material and the metallic  
3 member.

4 6. The method of claim 4 wherein the heat shrinkable member is a  
5 polymeric collar.

6 *Sub B5* 7. The method of claim 4 wherein the polymeric collar is formed of a  
7 fluoropolymer. <sup>PIAS</sup>

8 8. An intravascular catheter with an elongated shaft comprising:

- 1 a) an elongated metallic tubular member having proximal and  
2 distal ends and an inner lumen extending between the proximal and distal  
3 ends;  
4  
5 b) a polymeric tubular member having proximal and distal ends  
6 and an inner lumen extending between the proximal and distal ends; and  
7  
8 c) a hot pressed bond between one part of the metallic tubular  
member and one part of the polymeric tubular member.

1 9. The intravascular catheter of claim 8 wherein the polymeric  
2 material is a thermoplastic polymer selected from the group consisting of  
3 polyetheretherketone, polyetheramide, polyphenylene sulfide and polysulfone.

1 10. The intravascular catheter of claim 8 wherein the one end of the  
2 polymeric tubular member is disposed about and hot press bonded to the  
3 exterior of one end of the metallic tubular member.

1 11. A balloon dilatation catheter comprising:

2 a) an elongated proximal shaft section formed at least in part of  
3 a metallic tubular member having proximal and distal ends and an inner  
4 lumen extending between the proximal and distal ends;

5 b) an elongated distal shaft section formed at least in part of a  
6 polymeric tubular member having proximal and distal ends and an inner  
7 lumen extending between the proximal and distal ends;

8 c) a hot pressed bond between part of the metallic tubular  
9 member and part of the polymeric tubular member; and

10 d) an inflatable dilatation balloon on the distal shaft section  
11 having an interior in fluid communication with the inner lumen of the  
12 polymeric tubular member.

1 12. An intravascular catheter with an elongated shaft comprising:

2 a) an elongated metallic tubular member having proximal and  
3 distal ends and an inner lumen extending between the proximal and distal  
4 ends;

5 b) a polymeric adapter having proximal and distal ends and an  
6 inner lumen extending between the proximal and distal ends; and

7 c) a hot pressed bond between the proximal end of the metallic  
8 tubular member and the distal end of the polymeric adapter.

1 13. The intravascular catheter of claim 12 wherein the distal end of the  
2 polymeric adapter is bonded to the exterior of the proximal end of the metallic  
3 tubular member.

4 14. The intravascular catheter of claim 13 wherein the inner lumen of  
5 the metallic tubular member is in fluid communication with the inner lumen of the  
6 adapter.

7 15. A rapid exchange type balloon dilatation catheter comprising:

8 a) an elongated proximal shaft section formed at least in part of  
9 a metallic tubular member having proximal and distal ends and a first  
10 inner lumen extending therein;

11 b) an elongated distal shaft section, which is formed at least in  
12 part of a polymeric tubular member, having proximal and distal ends, a  
13 first port in the distal end and a second port spaced proximal to the distal  
14 end, a dilatation balloon with an interior, a second inner lumen extending

9                   therein which is in fluid communication with the first inner lumen in the  
10                   metallic tubular member and the interior of the dilatation balloon and a  
11                   third inner lumen which is in fluid communication with the first and second  
12                   ports; and  
13                   c)       a hot pressed bond between part of the metallic tubular  
14                   member and part of the polymeric tubular member.

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FOOTNOTED

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